

## Editorial

The serious deterioration of Powder Point Bridge came into focus recently when the selectmen asked the Duxbury Fire Department to make a submarine study of the pilings and to report on the overall condition of the bridge. Here is a report that could have been written only by men in diving suits. Some of the computations made in connection with this report were, in fact, written by Deputy Chief Howard Blanchard while he was under water.

As requested we have made a visual inspection of Powder Point Bridge, both above and below water. We wish it to be clearly understood that we are not engineers. Our opinions are based only on what is clearly visible to two practical and mechanically inclined men. (Reference is to Blanchard and Chief George Butler. -- Ed.)

Powder Point Bridge is a wooden structure built on driven piles. These piles are put in groups of four to 12 at right angles to the direction of the bridge. There are about 160 of these groups supporting the deck. We found that about 75% of the pilings are either completely gone or just rest on the bottom when carrying a load. The enclosed chart will show roughly the condition of some of the piles under water. Many of the groups near the shore ends, consisting of four piles, are supported by only two poor piles. The deck load is carried by heavy timbers running at right angles to the supporting piling headers. These timbers carry the load of the bridge, helping to span many of the weak sets of pilings. These timbers show a great deal of rot, in many, at least 40% of their original size. In passing, this is where many of our fires start: a cigarette landing on the rotten part of these timbers.

The bridge is decked with hard pine planks. Upon inspection it will be found that almost every plank in the bridge is at least 60% rotten, if not more. In our opinion the only thing holding the bridge up is the doubtful remaining strength in the bridging timbers and the bunkers. Bunkers are pilings set at an outward angle to the bridge, at the ends of each piling group. Many of these bunkers are missing completely.

What to do? In our opinion the bridge should be closed immediately to all vehicular traffic until proper inspection can be made by competent engineers. Necessary beach traffic could use the new road from Blakeman's stand. We feel that we have gambled too long. Let's not wait until we have a disaster!

That is the report submitted to our selectmen. Selectman Paul Barber was apparently not impressed by this eye-witness report. He sees no need of closing the bridge until we get an engineering report. That depends, of course, on WHEN we get such a report.

"I don't know where the people who say it's unsafe get their information," he says. "The bridge is in the same condition as it was in 1939." Paul Barber, who was 14 in 1939, wasn't then living in Duxbury, but even if he were, he didn't own a diving suit. Neither he nor Colin Marr, who makes some wild and unsubstantiated statements in his letter, saw what the firemen saw.

Our late building inspector, Francis Swift, personally condemned the bridge and wished he "could close it tomorrow." He showed a Clipper meeting several photographs showing the patent deterioration.

On Page 19 of this issue read an excerpt on marine borers from the April 1939 edition of "The Ensign," written by the late A.P. Richards, who was director of the Wm F. Clapp Laboratories. Molluscan borers, as a rule very destructive and widely distributed, are not the harmless "worms" envisaged by Mr. Marr. (Certainly they need oxygen, but, like fish, they die outside of water.)

It has been clearly shown that Powder Point Bridge, which connects the Duxbury mainland to a 7-mile beach between Marshfield and Plymouth Harbor, is floating, rotting and being eroded by marine worms. (Blanchard needed no pry bar to extract samples of the rotting pilings. He simply broke off segments with his hand -- segments of pilings holding up the bridge.) Not until 1971, when our Fire Department ran its survey mentioned above, was the seriousness of the problem realized. It was then that divers discovered that 75% of the pilings were missing or floating, not touching the silt unless cars passed above and put pressure on the structure.

"We went down and mapped the diameter of the pilings," Blanchard said. "They are in very, very poor condition. The bridge will never just collapse, but one storm or an overload of cars and it could fall sideways."

Chief Butler notes that "there are things that people don't want to face. Our job is prevention and we fear the bridge could get overloaded and tip over. But people don't get concerned about something until there's a disaster. We're on record as saying the bridge is not safe, but we have to wait for the townspeople to decide."

The bridge could be turned into a foot bridge, renovated for about \$300,000 (not the paltry sum suggested by Colin Marr), or demolished. A new bridge is out of the question, since it would cost around \$1,250,000. And many thinking citizens think it foolish to spend \$300,000 on a wooden structure that cannot be insured -- one that could go up in smoke in the event of a fire. Others argue that if, as many allege, the state will take over the bridge in five or ten years, let the state build a bridge for the public.

Many townspeople don't realize the bridge is considered to be hazardous by those who have most closely inspected it. As Deputy Fire Chief Blanchard said, "Most were too busy enjoying the beach this summer to worry about the bridge."

Forgotten is the fact that Powder Point Bridge was once a draw bridge. A few years after World War II, the so-called "halfway house" over the channel drifted away in a storm, taking supporting pilings with it. So let us not say that our bridge is immune to destructive storm action. It should be further noted that right now the railings are wobbly and unsafe in places. Offhand, we recall

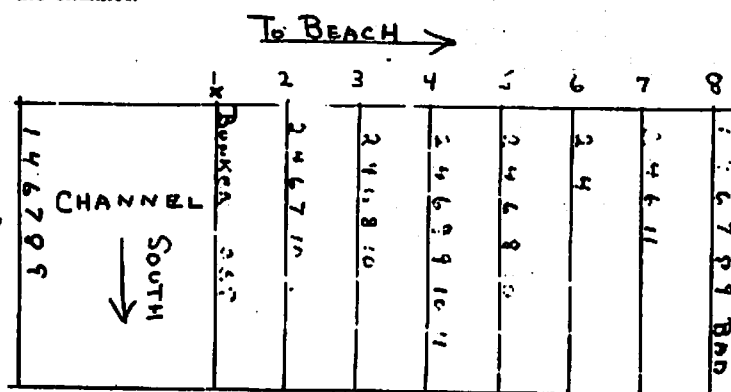
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two drownings that resulted when cars broke through the railing.

The chart below shows only a fraction of Powder Point Bridge, beginning with the channel and heading towards Duxbury Beach. It shows 16 spans under water and 33 spans Powder Point east to the channel.



From the channel to the outer beach there are about 125 spans.

Each span has from four to 12 pilings. There are more in the channel area because when new pilings were put in some of the old pilings were left floating.

Now note carefully: the numbered piles shown in this sketch (made on May 27, 1971) are NOT SUPPORTING ANY LOAD.

Note further that the 16 spans under water are never exposed to the elements, even at dead low tide.

The divers borrowed calipers from the Wm F. Clapp Laboratories Inc. of Battelle-Columbus Laboratories and measured the diameters of the tapering pilings. Physical measurements showed the effects of erosion by marine borers. The scientific facts set forth on Page 19 completely refute this statement by Mr. Marr:

"Apparently marine organisms and worms demand oxygen for their work, and are less likely to operate in deep water conditions."